# Hazard Elimination Project Evaluation

## Project Information

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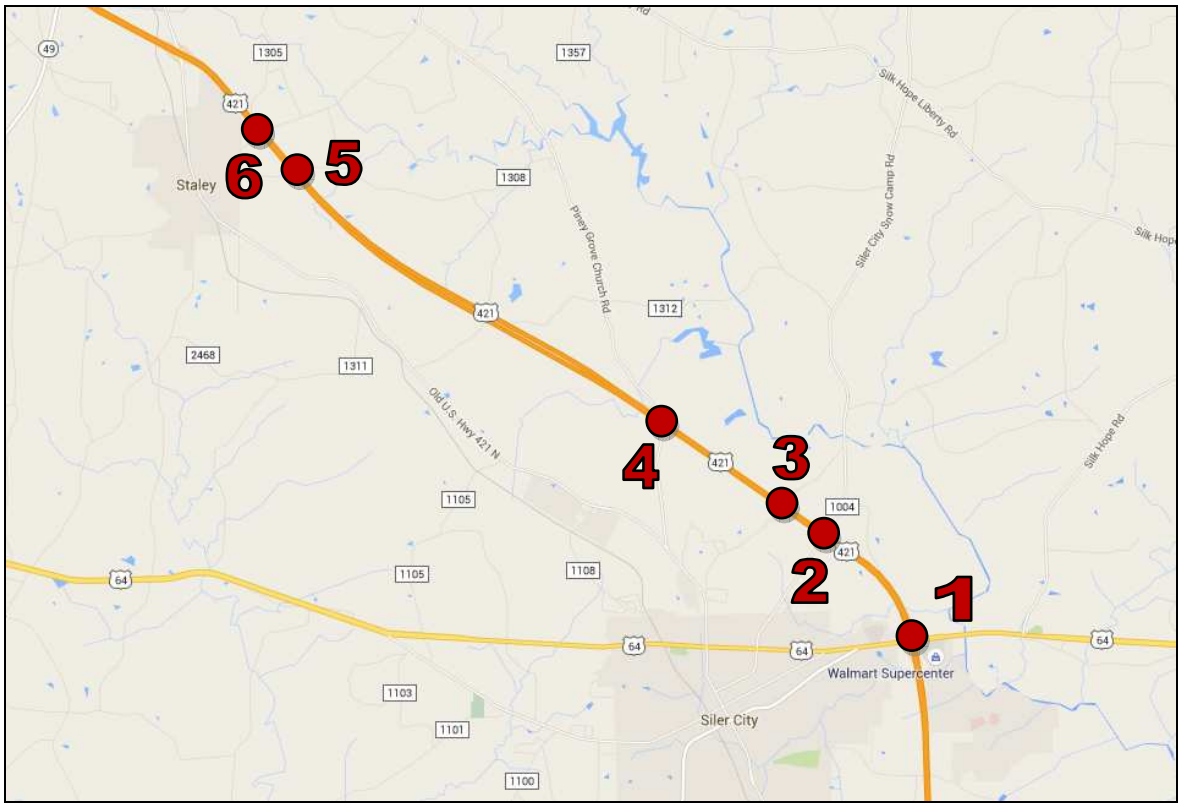
|---|---|
| Order ID: | 41000037542 |
| Project ID: | W-5208F |
| Location: | Six (6) Median Barrier Gap locations on US-421 between Mile Marker 170 and Randolph County |
| County: | Chatham |
| City: | North of Siler City |
| Division: | 8 |
| Countermeasure: | Install Median Barrier at various earth berm locations |
| Project Completion: | September 16, 2010 |
| Project Cost: | $106,000 |

## Map and Aerial (from Google Maps) – Coordinates 35.763724, -79.473406



Site-1: US-64 – MP 17.600 – 375’ south of bridge to 375’ north
Milepost Range: 17.529 – 17.671

Site-2: SR 1004 (Siler City Snow Camp Rd) – MP 18.927 – 485’ south of bridge to 465’ north
Milepost Range: 18.835 – 19.019

Site-3: SR 1316 (Harold Andrews Rd) – MP 19.424 – 490’south of bridge to 305’ north
Milepost Range: 19.332 – 19.483

Site-4: SR 1362 (Piney Grove Church Rd) – MP 20.822 – 500’ south of bridge to 475’ north
Milepost Range: 20.727 – 20.912

Site-5: SR 1308 (Charlie Cooper Rd) – MP 24.961 – 430’ south of bridge to 430’ north
Milepost Range: 24.880 – 25.042

Site-6: SR 1300 (Staley Snow Camp Rd) – MP 25.438 – 465’ south of bridge to 345’ north
Milepost Range: 25.222 – 25.503

## Naive Before and After Analysis

Before Period: July 1, 2005 through May 31, 2010 (4 years, 11 months)

Const. Period: June 1, 2010 through September 30, 2010

After Period: October 1, 2010 through August 31, 2015 (4 years, 11 months)

Analysis Criteria: Treatment data consisted of all crashes within the defined milepost limits from the six independent sites listed above with a 0-foot y-line.

Target Crashes: Median Lane Departure – Ran-off Road (Left), Fixed Object, Head-On, or Sideswipe (opposite direction) where the first event was a vehicle leaving the roadway towards the median.

| **Treatment Information** | **Before** | **After** | **Percent Reduction (-) Percent Increase (+)** |
|---|---|---|---|
| Total Crashes – 6 Sites Combined | 8 | 17 | 100+ % |
| Total Severity Index | 10.48 | 7.20 | - 31.3 % |
| | | | |
| Target Crashes – Median Lane Departure | 1 | 3 | 100+ % |
| Target Crash Severity Index – LD-Median | 1.00 | 5.93 | 100+ % |
| | | | |
| Median Hit Crashes (Bridge Before / GR After) | 1 | 4 | 100+ % |
| Median Hit Crash Severity Index | 76.8 | 4.70 | - 93.9 % |
| | | | |
| Volume (2006, 2010) – *Total Segment* | 11,000 | 8,800 | - 20.0 % |

| Injury Crash Summary | Before | After | Percent Reduction (-) Percent Increase (+) |
|---|---|---|---|
| Fatal injury Crashes | 1 | 0 | - 100.0 % |
| Class A injury Crashes | 0 | 1 | 100.0 % |
| Class B injury Crashes | 0 | 1 | 100.0 % |
| Class C Injury Crashes | 0 | 3 | 100+ % |
| Property Damage Only | 7 | 12 | 71.4 % |

| Additional Information | Before | After | Percent Reduction (-) Percent Increase (+) |
|---|---|---|---|
| Night Crashes | 6 | 7 | 16.7 % |
| Wet Roadway Crashes | 0 | 3 | 100+ % |
| Alcohol/Drugs Involvement Crashes | 0 | 1 | 100.0 % |
| | | | |
| Animal | 5 | 7 | 40.0 % |
| Debris | 0 | 1 | 100.0 % |
| Merge/Sideswipe | 0 | 1 | 100.0 % |
| Rear-End | 0 | 1 | 100.0 % |
| Shoulder Lane Departure | 2 | 4 | 100.0 % |
| Median Lane Departure | 1 | 3 | 100+ % |

| By Location | Before | After | Percent Reduction (-) Percent Increase (+) |
|---|---|---|---|
| Site-1: US-64 | 1 | 2 | 100.0 % |
| Site-2: SR 1004 | 1 | 1 | 0.0 % |
| Site-3: SR 1316 | 2 | 0 | - 100.0 % |
| Site-4: SR 1362 | 2 | 5 | 100+ % |
| Site-5: SR 1308 | 2 | 3 | 50.0 % |
| Site-6: SR 1300 | 0 | 6 | 100+ % |

## Overall Summary Results

| | | |
|---|---|---|
| Total Crashes: | 100 % | (increase) |
| Total Crash Severity: | - 31 % | (reduction) |
| Target Crashes: | 100 % | (increase) |
| Target Crash Severity: | 100 % | (increase) |
| Volume: | - 20 % | (reduction) |

## Additional Summary Results

| | | |
|---|---|---|
| Animal Crashes: | 40 % | (increase) |
| Site-3 Crashes (Before Fatal): | - 100 % | (reduction) |

## Items for Discussion/Concerns

The before period analysis presented a fatal collision where a motorist fell asleep and left the roadway on the shoulder then overcorrecting before striking the SR 1316 bridge supports at Site-3. The after period A-injury collision resulted from a motorcyclist losing control on the shoulder after experiencing a "speed wobble." The driver did not strike median guardrail.

Typically, one would expect guardrail installation projects to result in an increase in the frequency and a decrease in the severity of Median Lane Departure Crash types. The increase in Median Hit Crashes is expected due to the placement of a fixed object (guardrail) near the travel way. The decrease in the severity of Median Hit Crashes is expected due to the guardrail being more forgiving than the object it is protecting. The results from this project seem to be in concurrence with the abovementioned expectations.

Due to multiple locations and the small amount of crashes at all the locations, collision diagrams were not completed for this evaluation.

## Data Prepared For

The Traffic Safety Unit *of the*
Transportation Mobility and Safety Division *of the*
Division of Highways *of the*
North Carolina Department of Transportation

## Data Prepared By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|---|---|
| Principal Investigator: | Jason B. Schronce, PE |
| Work Group/Consultant: | NCDOT - Safety Evaluation Group |
| Date: | March 4, 2016 |